

**Exhibit E - Factor 3: Soundness of Approach**

State of Illinois

ILExhibitEApproach.pdf

## **Stakeholder Consultation**

### Outreach and Engagement Approach

The State and the Northeastern Illinois Resilience Partnership has convened over 275 stakeholders through 27 meetings held between November 2014 and March 2015. Stakeholders have included representatives from 41 units of government, 35 non-profit and community-based organizations, 15 research institutions, 8 foundations and 61 businesses (see Attachment D for a full list of stakeholders engaged to date).

The Partnership has employed a four-pronged approach to engagement: (1) engagement of local communities and stakeholders; (2) engagement of state leaders; (3) expert consultation; and (4) partnership coordination meetings.

### Local community engagement

Each regional planning council in cooperation with the local community leads vulnerable population and stakeholder engagement meetings among its region. Those attending include vulnerable residents and businesses, county government, local government, village and township board members, county emergency management, river rescue teams, senate and congressional offices, education, lending institutions, architectural and engineering firms, and non-for-profit services. The purpose of the meetings is to collaborate between all entities to determine vulnerabilities and resilience opportunities in the area.

The meetings were open to the public and advertised to the community, its businesses and vulnerable residents by press release, websites, social media, email contact lists and television and radio news media interviews. All feedback was compiled and was used to identify unmet needs and will be used for identifying specific areas for consideration in the Phase 2 plan.

### State leader engagement

The Illinois Statewide Resiliency Team consists of the Illinois Department of Natural Resources, Illinois Emergency Management Agency, Department of Commerce and Economic Development, Illinois Historic Preservation Agency. In response to the National Disaster Resiliency competition, the State is coordinating the expansion of this group to include Illinois Department of Transportation (IDOT), Illinois State Water Survey, Illinois Department of Agriculture, Illinois Department of Aging, Illinois Capital Development Board, Illinois Commerce Commission, Economic Recovery Commission, Governor's Office, Lt. Governor's Office, Illinois Housing Development Authority, Illinois Department of Insurance, Illinois Department of Public Health and the Illinois Tollway. The meetings will provide agencies the ability to leverage funds to improve fiscal efficiencies in implementing resilient measures with cross-platform benefits. Additionally, the agencies can collaborate in determining community solutions for co-benefits and more efficient use of funding. An example of this entailed a small community slated for an IDOT highway by-pass around town requiring extensive roadway embankment fill. The planned borrow site for the material was planned in conjunction with a proposed IDNR flood control dam, increasing the amount of available flood storage created due to the borrow site.

### Expert consultation

Five work groups were convened to garner input on and inform the region's emerging resilience framework for action. Each work group is comprised of 10-20 representatives. As a result, over 60 recommended resilience-building actions covering specific policy changes, research and modeling needs, finance mechanisms, planning activities, infrastructure

modifications, and approaches to build adaptive capacity at the individual, community, municipal, and regional scales informed this proposal and will be further explored in Phase 2.

1) Design & Engineering. This group began to define key principles and recommendations for building more resilient infrastructure systems that provide a multitude of benefits. Into Phase 2, this work group will be instrumental in assisting the applicants formulate and refine proposed physical interventions to reduce hazard exposure and build resilience. 2) Financing the Future: This work group engaged experts from the insurance, finance, economic development, and philanthropic sectors, and identified existing and emerging financial tools like State revolving loan funds, stormwater fees, and social impact bonds as potential mechanisms to fund interventions. 3) Using Technology to Impact Behavior: This work group was comprised of leaders from the technology, innovation, research, and emergency management sectors and focused on the use of technology in helping communities understand risks through better data collection, predictive modeling, alert systems, and awareness campaigns, and assisting communities in acting on these risks to prepare, respond, and adapt to current and future disasters. 4) Economic Transformation & Opportunity: This work group of experts leading the region's workforce, community, and economic development efforts identified emerging jobs, services, markets, and industries tied to resilience-building, particularly around urban food security and green infrastructure. 5) Multiplying the Benefits: This work group brought together ecologists, land conservationists, social scientists, public health, and social service experts recommending strategies for reducing vulnerabilities, including new approaches to increase recreational space, build social cohesion, coordinate messaging, and build preparedness.

### Resilience Roundtables

MPC has devoted time at monthly meetings of the Calumet Stormwater Collaborative to discuss regional resilience. NRDC hosted a meeting with staff from Rebuild By Design (RBD) to introduce the Partnership to that process, and several follow-up discussions with RBD have occurred. The Symposium on Urban Flooding, organized by the State and CNT, allowed specific discussion of the State's role in promoting resilience. Foresight Design Initiative hosted an after-work meeting with the four applicants to discuss proposals and respond to audience questions. Finally, MPC has initiated a series of "Resilience Roundtables," large meetings that invite national experts to present on specific resilience issues and discuss best practices. The first Roundtable featured speakers from two winning Rebuild By Design teams. Two additional Roundtables will focus on social vulnerability, featuring Jacqui Patterson of the NAACP Environmental and Climate Justice Program. Roundtables will continue to be scheduled.

### Regional Partnerships

Regional partnerships have laid the foundation for a collaborative effort to share information and strengthen institutional networks at the local and regional scales. The State cooperates with two regional partnerships. The Northeast Illinois Resiliency Partnership, led by CMAP, includes the eligible applicants from the Northeastern region and the State. The Statewide Resiliency Partnership, led by the State, provides similar coordination among other regions outside the Northeastern region. Additionally the Statewide Resiliency Partnership brings other regions in to participate to create an effort to build resiliency throughout the state. The State's application includes these regional that could meet threshold requirements. Invitations were sent to all regional planning councils, resulting in the state having 10 proposed

target areas. Statewide Resiliency Partnerships has included over 25 representatives from 3 state agencies, 7 regional planning councils and 5 local governments.

The Northeast Partnership has convened meetings from the storm water management and planning departments of the adjoining counties of Kane, Will, Lake, Kendall, and McHenry. The Northeastern Illinois Partnership has also met with a group of the region's largest funders of environmental initiatives to begin to generate support for Phase 2. And, on behalf of the Partnership, the Natural Resources Defense Council convened a meeting in Chicago with Rebuild By Design to learn more about the best practices of the winning teams in that competition.

Other timely and relevant events organized by members of the Northeastern Illinois Partnership have occurred during Phase 1, including the State-organized Symposium on Urban Flooding (February 10, 2015) and monthly meetings of the Calumet Stormwater Collaborative convened by the Metropolitan Planning Council (November 7, 2014; December 5, 2014; January 9, 2015; February 6, 2015). The both partnerships will continue to engage new partners and advance a comprehensive regional resilience framework for action.

#### How consultation affected the proposal

Through the engagement of public agencies, community residents, local businesses, regional experts, and vulnerable populations, the partnerships have developed a thorough understanding of the regional and local:

- Priority vulnerabilities across our built, natural, and social systems (from aging infrastructure to loss of biodiversity to unemployment). Consultations revealed the compounding interactions between these vulnerabilities.

- Unmet recovery needs, from declared disasters and chronic hazards. This includes the homeowners that continue to struggle, even emotionally, with the inability to go back to their home after this extended period of time.
- Current and future hazards, both shocks and stresses including weather-related events, lack of affordable housing, violence and fear knowing they are susceptible to the next event;
- Direct and indirect risks, including increase in hospitalization rates, long term public health concerns from contamination; as well as,
- Existing and emerging tools and opportunities to improve communication and create flood warning systems suited for the community demographics.

Influential insights from consultations include, but are not limited to:

- Compounding local economic effects due to loss of access to businesses for extended periods due to inundated and/or post disaster damage to infrastructure.
- Reduce single-points of failure by creating redundancies through systems.
- Improve trust between residents and public agencies through two-way communication that ensure information about risks, actions, and impacts is shared.
- Consider flexible policies that encourage the betterment and improvement through recovery, rather than return to the previous state.

#### Future activities – Phase 2 and beyond

The types of consultation described above will continue through Phase 2 and beyond, and be further strengthened through the involvement of additional stakeholders. The partnerships will continue to meet regularly through October 2015, and determine meetings schedule beyond that in order to establish a collaborative structure to:

- Coordinate on projects, policies, communication efforts, and grant applications
- Share best practices and lessons learned from pilot projects
- Report on progress and metrics for measuring impact
- Connect to and inform relevant efforts outside of the Partnership

Local leaders and stakeholders, including vulnerable populations and the organizations that represent them, will be included in the resiliency building workshops conducted at each target area. These workshops were initially mentioned on page 23 in Factor 1. The State and its statewide partners will host public meetings to hear directly from residents and businesses, and will consult with community-based organizations and local leaders for additional insight into the issues faced by vulnerable groups.

As explained in Factor 2, the pilot areas have already been chosen in part because of their concentration of vulnerable populations and businesses. Phase 2 will include a robust engagement process that builds community resilience by increasing the knowledge and resources available to vulnerable communities in addressing flooding; strengthens long-term social networks within communities and connections between communities and public agencies; and integrates local and technical understanding by providing opportunities for vulnerable populations to work with designers and decision-makers.

## **Ideas and Concepts**

### Introduction: overall approach

Catalyzed by the National Disaster Resilience Competition, the Northeastern Illinois Resilience Partnership (Northeast Partnership) seeks to build regional resilience to current and future hazards, stressors, and shocks by addressing each factor of vulnerability—physical exposure, population sensitivity, and adaptive capacity (as defined by the IPCC). Resilience to

flooding will be a focus, as all members of the Partnership experience chronic flooding, particularly urban flooding associated with intense rainfalls that overwhelm existing stormwater infrastructure. Based on the philosophy that preparedness for *any* disaster builds capacity to respond to *every* disaster, the ideas and concepts proposed also improve resilience more broadly. They are meant to improve the region's resilience to other threats such as tornados, extreme heat and drought, as well as chronic stresses like economic disinvestment or unemployment.

Resilience will be approached at both the community and regional scales. Working at both these scales will allow the Partnership to build resilience in our most vulnerable communities, while also making transformative infrastructural and institutional changes that equip the regions for a wide range of stressors and shocks, including climate change. The Partnership's ideas and concepts can be divided into three categories of work:

1. Detailed Resilience Plans, covering three Northeastern Illinois regional pilot areas and ten pilot areas across the remaining state. Each Plan will be led by the submitting applicant in an area that is representative of typical characteristics found in the region across social, ecological, and built profiles. Each will include significant technical analysis, community engagement, and prioritization of solutions to maximize co-benefits.
2. Cross-jurisdictional coordination of these Plans, with the goal of scaling them up to a regional, then statewide approach. Coordination of the Plans is meant to improve the level of innovation and quality within each, ensure that impacts are considered across jurisdictions, improve the state of practice for addressing resilience among the designers, and ultimately develop a template for resilience planning that can be used in other areas throughout the state.

3. A set of activities grouped into the Regional Resilience Framework. The Framework includes data and modeling, planning, capacity-building, financial mechanisms, and policy and institutional changes, led by a variety of stakeholder groups.

#### Detailed Multi-Hazard Resilience Plans

The State in cooperation with the statewide partners will develop a Detailed Multi-Hazard Resilience Plan (Plan) between March and October 2015. This Plan will focus on addressing unmet needs within the pilot areas described in Factor 2, as well as additional challenges identified through current and future engagement of the public. As one of four applicants in the Northeastern Partnership, these plans will allow applicants to develop innovative and lasting solutions for vulnerabilities that are shared with many other places within the state. The Plan will result in recommendations for local capital investments and local policy or institutional changes. The State's plan will be prepared in cooperation with a design team of contractors, including architects, landscape architects, engineers, urban planners, outreach specialists, and other technical experts, whose qualifications are presented in Factor 1b.

Each Plan will examine existing conditions and vulnerabilities of community assets, bring technical experts and vulnerable communities together to jointly define goals, develop alternative methods to address opportunities and challenges, evaluate these alternatives against performance measures to maximize co-benefits, and recommend solutions (including but not limited to capital investments) that best achieve the Plan's goals.

The types of solutions that will be considered include:

##### *1. Leadership and Strategy*

- a. Amending state, county and municipal policies so that standards, incentives, easements, administrative procedures and enforcement are sufficient to support effective flood control, restore and protect natural areas, and facilitate buyouts where desirable.
- b. Sewer-shed buyouts — for those areas identified as being impacted by relatively small rainfall events, or located in “choke points” where stormwater often backs up, examine the purchasing of properties to eliminate flood risk and create new spaces for green infrastructure, grey infrastructure and restoration of natural systems.

## *2. Infrastructure and Environment*

- a. Completing essential infrastructure projects, including repair and of Spring Valley waste water treatment plant, Meridian Road improve the resiliency of critical infrastructure to the community and businesses while lessening the areas economic impact during events.
- b. Green infrastructure and restoring tree canopy, specifically widespread deployment of projects that infiltrate, intercept, delay, and detain rainwater before it can reach stormwater drains and pipes.
- c. Floodplain buyouts — pursue buyouts of properties that have been repeatedly flooded or substantially flooded or are at risk of damage as climate change effects precipitation patterns.

## *3. Economy and Society*

- a. Improving the capacity and resilience of the transportation system during floods, severe storms, or blackouts, and roadway improvements that reduce the likelihood and impact of flood-related road closures.
- b. Developing an early flood warning system for the Cairo and Brookport that can be replicated throughout the state, which would provide valuable information to the public

reducing the likelihood of serious injuries, property damage, and disruptions to emergency services during floods.

#### *4. Health and Wellbeing*

- a. Conducting ongoing engagement, outreach and education on community hazards, building residents' awareness, and connecting organizations, businesses and agencies with watershed issues in continuing and innovative ways.
- b. Private property retrofits — achieved through [RainReady](#), a community-centered program that helps assess how flooding has affected residents and supports stormwater retrofits on individual properties.

Some features of each Plan are described further in other part of the proposal: (1) it will be coordinated with the Plans being pursued by the other applicants that make up the Partnership, as discussed in Factor 3b, part 3; (2) vulnerable groups will be co-creators and collaborators to design and implement the plan, as discussed in Factor 3a; and (3) it will prioritize solutions with outcomes that create multiple benefits, as discussed in Factor 4a.

#### Regional Scaling and Replicability

Achieving regional benefits from the pilot studies described above will require cross-jurisdictional collaboration with the Partnership. While the State will manage and administer the preparation of its own Plan, it will coordinate closely with the other members of the Statewide Partners, recognizing that otherwise a disconnected approach may result.

The State's design team will regularly communicate with the design teams contracted by the other applicants. This will occur in small, focused settings, involving the applicants, design teams, and other groups by invitation. The applicants and the design teams will share findings, best practices, and lessons learned to help inform the results of other Plans. These meetings will

occur regularly, and will sometimes involve site tours. Involvement of the expert advisers that formed the design and engineering work group (described in Factor 3a) is expected at this stage.

Each design team will also participate in regional educational and coordination efforts that involve researchers, climate scientists, groups who represent vulnerable populations, and many others. The planned Resilience Roundtables are one example of this regional coordination, and several of these will be focused on topics of interest to the design teams. Benefits of coordination include:

- Coordination allows peer review and feedback from regional experts on each Plan. The design teams will learn from regional experts about the impacts on climate change, best practices in involving vulnerable populations in planning, and similar topics, ensuring that these topics are fully integrated within each plan. Involvement of multidisciplinary experts will help to highlight interdependencies between sectors such as housing or community development that may not be present on the design teams.
- Stormwater, flooding, and resilience are multijurisdictional in nature. Regional coordination will provide a mechanism to examine the impact of each Plan on a broader geography, including adjacent areas. The State affects and is likewise affected by neighboring jurisdictions. Regional coordination will avoid problematic approaches, like making infrastructure investments that simply push flooding problems downstream. The “regional scaling” process provides an opportunity for other jurisdictions to be involved; the Applicants have already entered into an agreement to work together, and other adjacent units of government have expressed willingness to cooperate as well.

- Each Plan has statewide implications. The pilot areas are representative of types of flooding and impacts that respond to the regional context presented in Factor 2. The solutions in each pilot will also be applicable to other areas in the state.
- Continual peer review will lead to self-assessment of practices and solutions that are most effective.

Ultimately, the pilot areas are meant to create a model for Detailed Resiliency Plans that can be used statewide. Many other areas also suffer from chronic, repetitive flooding, and are equally in need of detailed plans for community resilience. A model approach allows resilience concepts to be applied to plans produced beyond the timeframe of the CDBG-NDR grant, providing a lasting, long-term commitment to address resilience.

This element of the proposal was inspired by the process used for Rebuild by Design (RBD), with further emphasis on regional collaboration between design teams. Its collaborative nature takes advantage of the region's existing institutional capacity. The Chicago region houses the Congress for the New Urbanism (CNU) and the American Planning Association (APA), the nation's two leading planning organizations, both of which will co-host events to involve their membership. The local chapters of APA and CNU, as well as similar professional organizations of architects, landscape architects, and engineers, will be involved as well.

#### Regional Resilience Framework

Many of the plans and policies in the Partnership's participating jurisdictions were developed based on incomplete assumptions of the current and future impacts of climate change. A comprehensive analysis of relevant plans, policies, and practices that influence the risk of all types of disasters will be done with the full input of stakeholders and members of the Partnership's various workgroups. In the course of Phase 2, the Partnership will identify and

prioritize the amendment and creation of new policies and guidance. An initial list of policies, plans, and other institutional practices has identified the following potential areas of opportunity.

Policy and regulatory change: Through the Urban Flood Awareness Act, the State will propose recommended model stormwater ordinance provisions that will incorporate climate change trends and resilience. Innovative and effective design practices generated from the Detailed Multi-Hazard Resiliency Plans can also be integrated into infrastructure design standards. For example, transportation agencies can incorporate green infrastructure design into roadway improvement projects, and can account for new flooding expectations due to climate change when designing transportation facilities.

The State also proposes to enact regulatory and policy changes to enable certain aspects of resiliency planning and design. The Illinois Department of Natural Resources (IDNR) will seek to implement certain recommendations of the ongoing Urban Flood Awareness Act, which covers areas outside of floodplains that suffer chronic flooding due to basement backups and limited sewer capacity. The state plumbing code should also be amended to allow for the re-use of water. The impacts on urban flooding as a result of climate change impacts will be evaluated, which may include recommendation for communities to adapt to climate change affects. A model storm water ordinance will produced addressing the recommendations of the report.

The State and the Illinois State Water Survey are discussing a future study to modify the state's rainfall distribution and rainfall depth design standards to account for climate change affects. Current state standards are based on historic events and assume these events are representative for future events. The study would account for climate change when performing analysis on past events and require a future adjustment that incorporates the proposed project life. The Office of Water Resources would adapt any of the new standards as requirements for

regulating the floodplains in the State. The state would act as a catalyst for local and regional ordinances to adopt these standards and garner support from professional organizations.

Lastly, the State will explore options for interagency coordination of resilience activities. This may be accomplished by establishing a resilience working group made up of representatives from all state agencies or by selecting a single resilience officer to lead various resiliency efforts. This effort is detailed in Factor 3a in the State Leaders Engagement section.

Data, modeling, research: The Partnership proposes to integrate myriad disconnected data sets, modeling efforts and other decision-making support tools to build a more comprehensive system for watershed and sewershed management and infrastructure optimization. The vision for this integrated system is that multiple parties would have access to the same decision-making support tools, using the same data, with the capability of assessing upstream and downstream impacts of a variety of water management decisions.

The vision in time will build a framework through which local planning efforts will utilize real-time and localized climate and precipitation data, on-the-fly inundation mapping, detailed soil permeability, flow paths, and current sewer and waterway capacity assessments. These improved data sources will maximize the benefits derived from public and private investments through science-based and community-informed capital improvement planning.

This system will allow for multi-hazard planning. A community can increase green infrastructure and storm water storage in groundwater recharge areas to maximize infiltration, reducing runoff while recharging aquifers increase the community's resilience to a future drought. A planning committee would be able to obtain high detail data needed locally while evaluating the regional impacts of proposed projects.

Planning: The Partnership proposes to integrate resilience into local plans and regulations, including comprehensive plans, zoning ordinances and development regulations, watershed plans, hazard mitigation plans, and capital improvement plans (CIPs). Integrating resilience within a comprehensive planning process allows interdependent solutions to be explored. For example, localized flooding may be ameliorated through installation of green infrastructure as part of road reconstruction projects, which may in turn achieve community development goals such as revitalization of nearby vacant properties. Considering multiple topics at once will help also communities to prioritize competing needs that cross departmental responsibilities.

CMAP's Local Technical Assistance (LTA) program, which was initiated by a HUD Sustainable Communities Regional Planning grant, funds local plans and ordinances that address transportation, land use, economic and community development, housing, the natural environment, and other topics. Each plan includes an inclusive outreach process and results in recommendations for infrastructure investment, regulatory changes, and policy actions. CMAP will integrate resilience as a regular part of these plans, using its 2013 Climate Adaptation Guidebook as an important starting point, which was recently highlighted by HUD as a key outcome of the Sustainable Communities Initiative.

The Partnership also proposes to integrate two distinct types of watershed planning. One is funded through the Illinois Environmental Protection Agency (IEPA), and covers stream quality, in line with the Clean Water Act; the other is prepared by stormwater management agencies, and focuses on flood reduction. Watershed plans that address both water quality and stormwater management would allow multiple goals to be achieved through a single plan. Other

types of plans would also benefit from additional inclusion of resilience; for example, hazard mitigation plans should directly consider likely impacts of climate change.

Economic and workforce opportunities: Public agencies and workforce development boards and intermediaries will train and connect the local workforce with on-the-ground projects (for example for the construction, design, and maintenance of resilient green infrastructure). The workforce training providers will also explore the creation of workforce programs aimed at vulnerable populations who have lost jobs or income due to disaster, as well as identify key recovery jobs needed after various types of disasters to build a workforce and economy that is prepared for a range of potential hazards. In addition to addressing the “supply side” of trained workers, the Partnership’s efforts to increase the amount of green infrastructure will build demand for its construction and maintenance. These and other economic and workforce activities will build from an existing CSC working group.

Capacity building and education activities: Achieving resilience requires capacity-building and education at many levels. To address vulnerable populations who are directly affected by flooding, the Partnership will hold workshops through [RainReady](#) and the [Illinois Association of Floodplain and Stormwater Managers \(IAFSM\)](#) that educate local residents and businesses about flooding resilience strategies, connect them with funding opportunities, and increase preparedness for a range of hazards beyond flooding. For example, such training may leverage existing social networks, such as neighborhood watch programs or block clubs, for community advanced warning systems to prepare for extreme weather events.